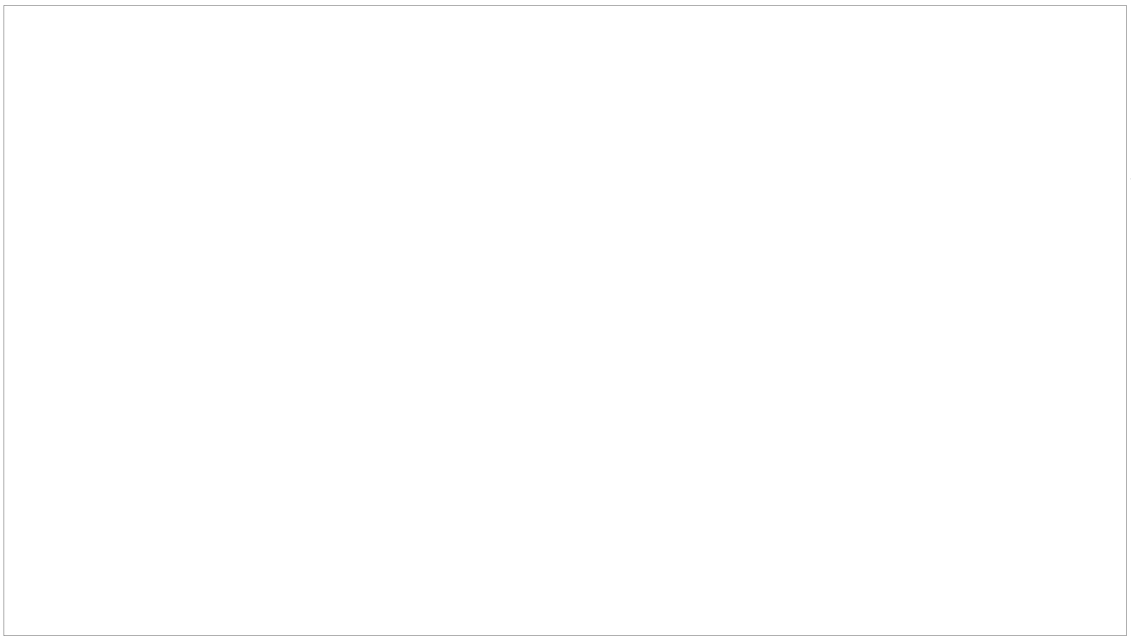

Title: THE "MARIBORSKI OTOK" HYDROELECTRIC POWER PLANT by Nikola Petrovic, Engr

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THE "MARIBORSKI OTOK" HYDROELECTRIC POWER PLANT

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Minister of Electric Power, FPRY

The Mariborski Otok (Maribor Island) hydroelectric power plant will ultimately have a capacity of 54,000 kw. Of the existing plants inherited from prewar Yugoslavia, only the "Tito" Hydroelectric power plant at Split with its installed capacity of 62,000 kw, will be larger; however, the plant at Split was built in Austro-Hungarian times. All the other Yugoslav power plants built before World War II are smaller than Mariborski Otok. Thus, Fala's capacity is 38,000 kw, Trbovlje 36,000 kw, and Belgrade 30,000 kw. Mariborski Otok is considerably larger than the "Barisa Kovacevic" station completed last year.

As compared with the other 22 which are now being constructed in Yugoslavia, the Mariborski Otok plant is in every respect in the same class as the major projects of the electrification plan, although many of them will be larger (Jablanica, Vinodol, Mavrovo, Zvornik, Kakanj, Kolubara, etc). The first unit of Mariborski Otok has a power of 18,000 kw.

Mariborski Otok is the first large electric power plant of the Five-Year Plan to be put into operation. It is the first large, modern electric power plant to be built in Yugoslavia predominantly by Yugoslav resources, including design, building, electrical machinery, and installation work.

Mariborski Otok was begun by the Germans during the war. When they capitulated, the building work was 30 percent complete. When withdrawing, the Germans removed most of the plans. Yugoslav designers succeeded in finishing the project without foreign help.

The plans involved were checked on models. Over 2,000 tests were made in Prof Goljevscek's hydraulic engineering laboratory in Ljubljana. These tests were the first of their kind in Yugoslavia.

The construction of this great power plant entailed excavating 62,000 cubic meters of soft earth and 32,000 cubic meters of rock; 12,000 tons of

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cement were used.

The turbine for this plant was ordered abroad, but it was installed by the Federal Installation Enterprise for Hydroelectric Power Plants, Ministry of Electric Power, FPRY.

The installation of a 345-ton turbine was completed in 182 days, whereas a foreign firm with many years experience demanded 294 days for the work.

By training Yugoslav installation personnel, great savings were effected. To-day a foreign installation worker in Yugoslavia is paid 1,500 dinars a day and more.

The hydromechanical installation, bordering on 1,500 tons, was built and installed mainly by Yugoslav resources and plants, for the first time in Yugoslavia. The large gear wheel 2.5 meters in diameter and over 2.5 tons in weight was patterned and cast in the Gustanj Steel Plant, heat-treated in the Jesenice Iron Works, and machined in the Ivo-Lola Ribar Factory at Zeleznik. Total manufacturing costs, including transportation, of one gear wheel were 130,000 dinars, whereas a foreign firm demanded 180,000 dinars for manufacture only.

The generator was begun by a foreign firm, but the firm could not guarantee delivery on time. It was decided to buy the completed portions from the firm and finish the job in the "Rade Koncar" plant. It was the first time that a generator of this size had been made in Yugoslavia. Its weight is 230 tons and length 10 meters. Sixty percent of the work was done in Yugoslavia. The installation took 225 days, whereas the foreign firm required 450 days. This is the largest generator yet produced in Central Europe.

The transformers and distribution equipment were also built with Yugoslav resources.

The installation was done without sufficient planning and organization, although it was common for workers, especially in the last phase of the building, to work 16 hours and more a day. At Mariborski Otok and also at other electrical installation projects, one notices a perfunctory attitude, and in some place antagonism, toward planning among the technical intelligentsia. In most cases this does not mean an antagonistic attitute to

socialistic building and planning in general. The need for a planned economy is recognized, but it is said to be difficult to plan installation work because of its particular nature, and some harp on their prewar experience and say that they "lead" the work and regulate the tempo "by feeling". Some technical leaders claim not to have enough time for planning. Engineers with a fine technical and specialist knowledge sometimes think that it is enough if the Planning Committee or Planning Sector of the Ministry works out annual and quarterly plans and there the matter ends.

The following enterprises took part in the project: "Rade Koncar", "Gradis", "Hidromontaza", "Treci Maj", "Tvornica automobila" in Maribor, "Ivo-Lola Ribar", Zeljezara Gustanj, Zeljezara Jesenica, "Splosna" Maribor, Mariborska Livnica, "Litostroj" Maribor, DES Tezno, Tvornica poljoprivrednih strojeva, etc.